

SUBA1

1. A multi-format audio/video production system adapted for use with a display device, comprising:
- an input to receive a signal representative of an audio/video program in one of a plurality of display formats;
 - 5 high-capacity video storage means including an asynchronous program recording and reproducing capability;
 - an operator control; and
 - a graphics processor in communication with the input, the high-capacity video storage means, and the operator
 - 10 control, enabling a user to perform the following functions:
 - (a) convert the display format of a program received through the input into an intermediate production format,
 - (b) perform a frame-rate conversion of a
 - 15 program received through the input using the asynchronous recording and reproducing capability associated with the high-capacity video storage means, and
 - (c) output a program having a display format or frame rate different than that of the program received through
 - 20 the input.

2. The multi-format audio/video production system of claim 1, wherein the graphics processor is operative to output a program in a standard television format regardless of the display format of the input program.

25 3. The multi-format audio/video production system

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of claim 1, wherein the graphics processor is operative to output a program in a widescreen format regardless of the display format of the input program.

4. The multi-format audio/video production system
5 of claim 1, wherein the graphics processor is operative to output a program in an enhanced-definition format regardless of the display format of the input program.

5. The multi-format audio/video production system
of claim 4, wherein the enhanced-definition format is an HDTV
10 format.

6. The multi-format audio/video production system
of claim 1, wherein the graphics processor is operative to output a program in a film-compatible format regardless of the display format of the input program.

15 7. The multi-format audio/video production system
of claim 1, wherein the graphics processor is further operative to perform a pan/scan operation with respect to a
program received through the input. ~~7/16~~

~~SUB A2 8. The multi-format audio/video production system
20 of claim 1, wherein the graphics processor is further operative to perform an interpolation operation with respect to a program received through the input so as to expand the~~

number of pixels associated with the production format as compared to the input format.

9. The multi-format audio/video production system of claim 1, wherein the graphics processor is further operative to perform an interpolation operation with respect to a program received through the input so as to reduce the number of pixels associated with the production format as compared to the input format.

10. The multi-format audio/video production system of claim 1, wherein the high-capacity video storage means includes sufficient capacity to store at least 120 minutes of program material to perform the frame-rate conversion.

11. The multi-format audio/video production system of claim 1, including high-capacity video storage means in the form of a removable medium.

12. The multi-format audio/video production system of claim 1, further including means for performing a data compression operation on a program prior to storing the program in the high-capacity video storage means.

13. The multi-format audio/video system of claim 1, wherein the intermediate production format is based upon a frame rate of 24 frames per second.

~~SUBA3~~

14. A multi-format audio/video production system forming part of a general-purpose computer platform having a user input and a color display, the system comprising:

means to receive an input video program in one of
5 a plurality of input formats;

high-capacity video storage means;

means to convert the input program into a 24
frames-per-second (fps) production format, if necessary, for
storage within the high-capacity video storage means and for
10 review on the color display; and

means to convert the production format into one or
more of the following output formats, either directly

from the input or from the storage means:

NTSC at 30 fps,
15 PAL/SECAM at 25 fps,
HDTV at 25 fps,
HDTV at 30 fps,
film-compatible video at 24 fps, and
film-compatible video at 30 fps.

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15. The multi-format audio/video production system
of claim 14, wherein the means to convert the production
format into one or more of the output formats further includes
interpolation means to expand the number of pixels associated
25 with the production format.

~~16.~~ The multi-format audio/video production system

of claim 14, wherein the high-capacity video storage means includes asynchronous program recording and reproducing capabilities to provide a program in an output format having a desired frame rate.

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~~16.~~
~~17.~~ The multi-format audio/video production system of claim 14, wherein the asynchronous program recording and reproducing capabilities are used to increase the frame rate from the 24 fps production format frame rate to a 25 fps
10 output frame rate.

~~21.~~
~~18.~~ In an enhanced personal computer having a color monitor, the method of producing a video program, comprising the steps of:

15 receiving an input video program;
 converting the input video program into a production format having a predetermined frame rate and image dimension in pixels;

 providing a high-capacity video storage means
20 equipped with an asynchronous program recording and reproducing capability to perform a frame-rate conversion;

 manipulating the video program in the production format using the high-capacity video storage means on a selective basis to output an edited version of the program
25 having a desired frame rate and image dimensions in pixels which may be different from those of the production format.

^{22.}
~~19.~~ The method of claim ~~18~~²¹, further including the step of interpolating the video program in the production format to output an edited version of the program having pixel dimensions greater than that of the production format.

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^{23.}
~~20.~~ The method of claim ~~18~~²¹, further including the step of controlling pan/scan operations relative to the received input video program.

^{24.}
~~21.~~ The method of claim ~~18~~²¹, wherein the
10 high-capacity video storage means includes sufficient capacity to store at least 120 minutes of program material.

^{25.}
~~22.~~ The method of claim ~~18~~²¹, further including the step of providing a removable high-capacity video storage medium.

^{26.}
15 ~~23.~~ The method of claim ~~18~~²¹, further including the step of data compressing the video program in the production format.

^{27.}
~~24.~~ The method of claim ~~18~~²¹, wherein the predetermined frame rate is 24 frames per second.

^{17.}
20 ~~25.~~ The method of claim ~~17~~¹⁶, wherein the step of manipulating the video program in the production format further includes the step of performing an interpolation

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operation on a received so as to expand the number of pixels associated with the production format as compared to the input format.

18. ¹⁶
~~26~~ The method of claim ~~17~~, wherein the step of
5 manipulating the video program in the production format further includes the step of performing an interpolation operation on a received so as to reduce the number of pixels associated with the production format as compared to the input format.

10 19. ¹⁶
~~27~~ The method of claim ~~17~~, wherein the step of manipulating the video program in the production format includes the step of panning and scanning the vision center of the displayed program.

15 20. ¹⁶
~~28~~ The method of claim ~~17~~, wherein the step of manipulating the video program in the production format includes the step of providing predetermined criteria used to restrict the viewing of the program.

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